CLAIMS

1. A radioactive microsphere comprising not less than 99% by weight of an oxide crystal containing 47% by weight or more of radioactive yttrium, and the balance of inevitable impurities.

2. The radioactive microsphere according to claim 1, wherein the oxide crystal consists essentially of Y_2O_3.

3. The radioactive microsphere according to claim 1, wherein the oxide crystal consists essentially of YPO_4, or a mixture of Y_2O_3 and YPO_4.

4. The radioactive microsphere according to claim 1, wherein the microsphere has a diameter of 1 to 100 μm.

5. The radioactive microsphere according to claim 1, wherein the microsphere has a diameter of 20 to 30 μm.

6. The radioactive microsphere according to any one of claims 1 to 5, wherein the microsphere is coated with a film comprising at least one of the compounds selected from silica (SiO_2), titania (TiO_2), alumina (Al_2O_3), iron (III) oxide (Fe_2O_3), silicon nitride (Si_2N_3, SiN, Si_3N_4), aluminum nitride (AlN), titanium nitride (TiN), iron nitride (Fe_2N,

Fe_4N), silicon carbide (SiC) and titanium carbide (TiC).

7. The radioactive microsphere according to claim 6, wherein the film has a thickness of 0.01 to 5 μm.

8. A method of producing a radioactive microsphere, the method comprising preparing a microsphere comprising not less than 99% by weight of an oxide crystal containing 47% by weight or more of non-radioactive yttrium, and the balance of inevitable impurities through melting of a starting material, followed by irradiating with an effective dosage of slow neutrons to turn non-radioactive yttrium into a radioactive element.

9. A method of producing a radioactive microsphere, the method comprising preparing a microsphere comprising not less than 99% by weight of an oxide crystal containing 47% by weight or more of non-radioactive yttrium and an amount of phosphrous, and the balance of inevitable impurities through melting of a starting material, followed by heating the microsphere in an oxidizing atmosphere and then irradiating with an effective dosage of slow neutrons to turn non-radioactive yttrium into a radioactive element.

10. The method according to claim 8 or 9, further comprising coating the microsphere with a film after preparing the

microsphere or heating in the oxidizing atmosphere and before irradiating with an effective dosage of slow neutrons, the film comprising at least one of the compounds selected from silica (SiO_2), titania (TiO_2), alumina (Al_2O_3), iron (III) oxide (Fe_2O_3), silicon nitride (Si_2N_3, SiN, Si_3N_4), aluminum nitride (AlN), titanium nitride (TiN), iron nitride (Fe_2N, Fe_4N), silicon carbide (SiC) and titanium carbide (TiC).